Statement of
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Mr. Chairman and Members of the Committee, it is a privilege and an honor to appear before you today as the President's nominee to be the Associate Director for Science of the Office of Science and Technology Policy (OSTP). If I am confirmed, I will have the honor of serving the President, his science advisor, Dr. John Marburger, and of working with you and your fellow Members of Congress to ensure that our strong national policy , which continues America's leadership in research and development, provides the underpinning of our investments in science and technology.

I believe that everyone in this room would agree with the 1945 statement by Vannevar Bush, author of the report titled "The Endless Frontier" which led to the establishment of the National Science Foundation. He said: "Scientific progress is one essential key to our security as a nation, to our better health, to more jobs, to a higher standard of living, and to our cultural progress." These words hold true today. Indeed in an October 8, 2001 *New York Times* letter to the editor, Dr. Leon M. Lederman, Director Emeritus of Fermilab and a 1998 Nobel Laureate in Physics wrote: "Support of basic research offers a double-whammy of a solid payback to the Treasury of between 30 percent and 60 percent per year (after a waiting period of 5 to 10 years), as well as an array of new knowledge and technologies that create wealth, add to human health and longevity, and help fulfill human potential."

It is for these reasons that we must continue to make the right investments in science and technology (S&T) funding; promote partnerships between government, academia, and industry; strengthen our nation's research infrastructure; and develop education programs and opportunities that excite, engage, enlist, and train the next generation of U.S. scientists and engineers. It is for these reasons that I wish to serve in the position for which I have been nominated.

If I am confirmed as Associate Director for Science, I will work closely together with Dr. Marburger and the Associate Director for Technology to achieve these goals.

OSTP has two primary responsibilities:
1. To advise the President on S&T, and
2. To provide leadership and coordination for our government's role in the national S&T enterprise.

Towards this end, we must ensure that our S&T portfolio is responsive to Presidential and Congressional intent, that our cross-agency activities are well coordinated, and that our research

and development (R&D) investments reflect our priorities and are efficiently used.

If I am confirmed, in my role as Associate Director for Science, I am committed to continuing OSTP's coordination of a broad and balanced federal research portfolio that challenges the frontiers of scientific knowledge, yet is based on the excellence defined by a robust peer review process. This coordination requires extensive communication among the federal science agencies, colleges and universities, professional societies, state and local governments, and the private sector. OSTP will continue to be instrumental as a liaison and facilitator, integrating ideas and advice to help establish our science and technology priorities. Dr. Marburger has established a flexible organization to provide for better integration across interdisciplinary research questions, such as nanoscience, climate change research, and genomics, as well as international collaborations where appropriate.

If I am confirmed, one of my first actions will be to begin to co-chair National Science and Technology Committees (NSTC), such as the Committee on Science, the Committee on Environment and Natural Resources, and the Committee on International Science, Engineering, and Technology. This committee structure, along with ad hoc working groups within the NSTC, has proven to be successful in bringing together all relevant science agencies and departments on cross-cutting research and education activities that advance our nation's science and technology priorities. As Dr. Marburger noted in his statement when he appeared before this Senate Committee on October 9, 2001: "OSTP has a unique position and perspective that enables us to assess the vast sweep of scientific endeavors of our various federal agencies and departments. The complexity of this activity, the diversity of its impacts, the intensity of its many advocates mask an underlying machinery of the scientific enterprise whose parts must work in balance to effect the smooth functioning of the whole. Our joint responsibility is to identify the crucial parts, evaluate their effectiveness, and ensure their continued strength through all the mechanisms available to national government."

In the FY03 budget, the President has set forward his agenda that reflects the change in priorities by focusing on three primary goals: winning the war on terrorism, protecting the homeland, and reviving our economy. Given the importance, as well as the vital role that science plays for our nation and our lives, the President's research and development (R&D) budget is greater than $100 billion – up 8% overall from last year and representing the largest requested increase for R&D in over a decade. There is always a continual need for re-examining the role and priorities of the federal S&T basic and applied research programs and their interaction with the budget.

Over the past years, concerns are growing about ensuring a balanced research portfolio. Indeed, we all recognize that advances in one field, such as medicine, are dependent upon knowledge gained in other disciplines. One of my favorite examples as NASA Chief Scientist was to tell how the charge-coupled devices in the Hubble Space Telescope that convert a distant star's light directly into digital images have been adapted to aid in the detection of breast cancer in women. While the new technology continues to be refined, it can image breast tissue

more clearly and efficiently than conventional mammograms. NASA developed a joint program with the National Institutes of Health and the Office on Women's Health in the Department of Health and Human Services, to use this technology to develop digital mammography that detects tumors as small as 0.1 mm. More money, however, doesn't necessarily translate into more results or scientific and/or technological breakthroughs. It is important to prioritize our S&T investments, especially with respect to scientific opportunities, to maximize the return.

Recently, Dr. Marburger along with the Director of the Office of Management and Budget issued a memorandum (May 30, 2002) to guide federal agencies towards preparation of their respective FY04 budget. The memo states "The Administration will favor investments in federal R&D programs that sustain and nurture America's S&T enterprise through the pursuit of specific agency missions and stewardship of critical research fields and their enabling infrastructure…Agencies with responsibilities for specific fields of science and engineering should consider the impact of their research investments on the sustained viability of these disciplines for national priorities". This memorandum sends the message that the priority setting process will carefully consider the importance of a well-balanced R&D portfolio.

Another immediate challenge is our aging research infrastructure at our federal laboratories and colleges and universities. We need to recognize that state-of-the-art instrumentation and modernized infrastructure are enablers of the research enterprise and, therefore, play a vital role in furthering our S&T objectives. The health of our research institutions and continued advancement in instrumentations are critical variables in sustaining our leadership in S&T. The FY 2004 Interagency R&D Priority Memorandum also addresses this important issue, stating that "Some agencies operate programs or facilities whose capabilities are important to the missions of other agencies as well as their own. Stewardship and continued development of these facilities and associated instrumentation can serve a range of scientific and engineering disciplines. These capabilities consequently carry an interagency coordination responsibility and will be given special consideration in the budget preparations. OSTP, through the NSTC process, will evaluate how best to ensure the availability of instrumentation and facilities for priority S&T needs."

Finally, an immediate challenge is science education. Science education is vital for ensuring a public understanding of math and science issues for our citizenry, as well as for developing the strong S&T workforce needed to sustain our nation's leadership and innovation in the 21st Century. Growing concerns have been expressed by our R&D industries, our federal laboratories, and our colleges and universities about the number of U.S. students majoring in math, science, and engineering – especially the under-representation and under-utilization of women and minorities in many fields. Congress and the federal government have recognized this important issue and new programs, such as the President's education blueprint "No Child Left Behind" and a new Math and Science Partnership Initiative have become reality. Our nation is concerned about the shortage of qualified math and science teachers, especially in disadvantaged school districts, and has developed a student-loan forgiveness program for math and science teachers. Our colleges and universities are developing programs to introduce

students to research and instill an inspiration for discovery beginning at the undergraduate level. Congress established the Commission on the Advancement of Women and Minorities in Science, Engineering and Technology Development (P.L. 105-255, approved October 14, 1998)), in which I served as a federal representative, that set forth recommendations to help build a diverse workforce capable of meeting our nation's S&T workforce challenge. OSTP established a "Global Science and Technology Week," occurring in early May, to help stimulate student interest in S&T. The federal government has recognized this challenge; and I believe it is important for OSTP to strengthen partnerships among Congress, federal, state and local government, school systems, professional societies, academia, and the private sector to maintain programs that work, and develop and foster new approaches that will ensure a strong and robust science, technology and engineering enterprise that represents the talents of all Americans.

In closing, I would like to say that throughout my career, I have been committed to the advancement of science, research, and education and have always welcomed new challenges and opportunities consistent with this goal. I have carried out scientific research supported by federal grants, published research articles, edited a book, organized international research conferences, gave numerous scientific presentations, and lectured students and integrated their education program within my neuroscience research program. I have served on federal research review panels, as well as directed federal research programs within and across scientific disciplines, including at the Science and Technology Centers the National Science Foundation. I have led and managed research organizations setting scientific and budgetary priorities and policies. I have developed and fostered collaborations and programs across disciplines and federal scientific agencies. I have gained legislative experience, especially with the Senate Subcommittee on Science, Technology and Space as a Brookings Institution Legislative Fellow in the office of Senator Conrad Burns. I have given numerous presentations at elementary, middle, and high schools. I also serve as a mentor.

I believe this unique combination of education and research accomplishments, executive and legislative positions, a record of administrative leadership, and knowledge of the challenges facing colleges and universities and our government will allow me to successfully meet the responsibilities of this important and prestigious position.

Mr. Chairman and Members of the Committee, thank you again for the consideration. I enthusiastically look forward to the prospect of working with Dr. Marburger and you, listening to your advice and direction, to foster a continually strong and vibrant R&D research and education portfolio. As Dr. Lederman stated in his *New York Times'* letter to the editor: "The combination of education and research may be the most powerful capability the nation can nurture in times of stress and uncertainty."